



II. MARKED UP CLAIMS

Claim 8 has been amended as follows:

8. A composite laminate interlayer for adhering glass laminates comprising a layer of plasticized polyvinyl butyral adhesive having a glass transition temperature greater than 35 °C, at least one layer of polyethylene terephthalate sheet having a thickness greater than 0.075 millimeters (3 mils), at least one elastomeric layer adapted to reducing sound transmission through the glass laminate, and at least one other layer of plasticized polyvinyl butyral[alcohol] adhesive.

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III. ARGUMENTS

REJECTIONS UNDER 35 U.S.C. § 103(A):

Claims 1-6, 9-12, 14-24 and 26-28 have been rejected under 35 U.S.C. §103(a) as allegedly being obvious over United States Patent No. 5,932,329 to Frost et al. (hereinafter "Frost"). Furthermore, claims 13 and 25 have been rejected under 35 U.S.C. §103(a) as allegedly being obvious over Frost in view of U.S. Patent No. 5,796,055 to Bensen, Jr. et al. (hereinafter "Bensen"). Claims 7 and 8 have been rejected under 35 U.S.C. §103(a) as allegedly being obvious over Frost in view of U.S. Patent No. 5,227,241 to Chaussade et al. (hereinafter "Chaussade"). Applicants respectfully traverse these rejections and ask the Examiner to withdraw these rejections in view of the following arguments.

Independent claims 1, 6, 7, 8, 15 and 25 each calls for a layer of plasticized polyvinyl butyral (PVB) to have a glass transition temperature (Tg) of greater than 35 °C. Similarly, independent claim 9 calls for a glass laminate to have a maximum flexural modulus greater than about 350 Newtons / centimeter (N/cm). As stated in the specification at page 3, lines 1-12, an increase in the Tg of the PVB layer results in that PVB layer having a higher stiffness than those of lower Tg values. Stiffness of plasticized PVB contributes to flexural modulus for a glass laminate comprising the PVB. Thus, Tg is related to flexural modulus, in that the higher the stiffness, the higher the flexural modulus. Thus, each of independent claims 1, 6, 7, 8, 9, 15 and 25 expressly require a high stiffness PVB layer.

The examiner has rejected each of these claims, commenting, for example, that "[a]lthough [Frost] does not teach a temperature transition [Tg] or maximum flex modulus, it would have been obvious to one of ordinary skill in the art to include these features because Frost teaches the same materials having the same function as applicants claimed invention." Applicant respectfully disagrees with the Examiner's argument for a number of different reasons.

First, the laminated glass panel disclosed by Frost improved overall appearance of the laminate by using a very thin polyvinyl butyral film as the first adhesive layer. The primary purpose of Frost is to improve the visual appearance of the laminate by avoiding the creation of an optical defect called hammering or wrinkling. Conversely, the instant application is directed

toward improving the intrusion resistance of a glass laminate. Frost does not mention improving intrusion resistance of a glass laminate at all; Frost simply discloses a laminate with improved optical properties.

Second, Frost contemplates the use of its laminated glass composite in motor vehicle windshields. At Frost column 3, lines 17-20, Frost discloses that the thickness of its PVB layer is limited "for biomechanical reasons in the case of motor vehicle windshields." This being the case, the Frost glass laminate would need to meet stringent government regulatory safety codes regarding the safety of motor vehicle windshields.

The Federal Motor Vehicle Safety Standard (FMVSS) 208 issued by National Highway Traffic and Safety Administration (NHTSA) is a code prescribing minimum safety requirements of motor vehicles. One of the purposes of this safety code is to reduce injuries resulting from head impact with various surfaces of the vehicle during crashes including the windshield. One of the evaluation methods specified in this code is called "head injury criteria" or HIC. This method involves the use of an unbelted test dummy with instrumented head in a frontal crash test scenario. The deceleration forces on the dummy head as it contacts the windshield (or other interior compartment surface) are measured as a function of time and a HIC value is determined. Based upon previous studies a direct correlation between the measured HIC value and the potential for significant head injury or death was developed and a maximum value assigned. With the use of glass laminates with increased stiffness such as those claimed in the present invention in motor vehicle windshields, there will be a significant increase in the measured HIC value with the likelihood that the risk of severe injury or death would be greatly increased.

Disagree
measure of
winds

Because the Frost glass laminates are designed for "biomedical reasons", Frost does not contemplate a high stiffness glass laminate composite structure. It is unlikely that the laminates claimed in the present invention that use a thicker PET layer in combination with a high Tg PVB layer would comply with the governmental regulations because of the increased glass laminate stiffness. One use of the present invention is for the replacement of tempered side and back glass in motor vehicle windows with intrusion resistant laminated glass. It is not contemplated that the

present invention is for use in windshields as there would likely be significant safety related issues because of the laminate's increased stiffness.

Frost is claiming the described structure for the sole purpose of improving laminate appearance while maintaining improved solar reflecting characteristics and typical laminate performance properties of conventional glass/PVB/glass laminates. There was no intent by Frost to improve intrusion resistance of the laminated glass as is the case with the instant invention. Thus, Applicants respectfully assert that the Examiner's comment that "Frost teaches the same materials having the same function as applicants claimed invention" is not correct. The two laminates do not have the same function, as Frost is directed to improved laminate optical performance while the instant invention is directed to improved laminate stiffness.

Specifically with regard to Claims 7 and 8, the examiner rejected these claims as being obvious over Frost in view of Chaussade. Applicants respectfully disagree with the Examiner that Frost and Chaussade are analogous art because they are from the same field of laminates. First, Chaussade deals with glass laminate structures for airplane windows, whereas Frost deals with laminates for motor vehicle windshields. Applicants assert that these are not analogous arts, in that the cited applications are quite different and the required end use performance requirements of each are drastically divergent.

For example, Frost requires glass thicknesses of 2-3 mm for each piece of glass, where as Chaussade requires glass thicknesses of 4-8 mm. Furthermore, the total PVB thickness of Frost is .76 mm, where as the total thickness for Chaussade is roughly 7.6 mm. These differences are due to the drastically different approaches that must be taken to produce a glass laminate composite for a motor vehicle and one for an airplane. Because the cited applications and associated laminate constructions are quite different, Frost and Chaussade are not analogous art from the same field of laminates, and thus cannot be relied upon by the Examiner.

Given the above, Applicants respectfully request that the rejection of independent claims 1, 6, 7, 8, 9, 15 and 25 under 35 U.S.C. §103(a) be reconsidered and withdrawn and that the Examiner indicate the allowance of those claims in the next paper from the Office. Because Applicants believe that these independent claims are allowable, Applicants respectfully assert

that the rejections of claims 2-5 (dependent upon claim 1), 10-14 (dependent upon claim 9), 16-24 (dependent upon claim 15), and 26-28 (dependent upon claim 25), are now moot and the rejection of those claims should be reconsidered and withdrawn as well.

Applicants hereby request for any extension of time that may be deemed necessary to further the prosecution of this application.

Applicants' representative hereby authorizes the Commissioner to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 01-2508/12598.0128.NPUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, Applicants respectfully request that the Examiner directly contact the undersigned by phone to further the discussion, reconsideration and allowance of the claims.

Respectfully submitted,



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